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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/263,842	03/08/1999	TAKAAKI TERASHITA	IONPA-5001	2295

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EXAMINER

WU, DOROTHY

ART UNIT

PAPER NUMBER

2697

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/263,842

Applicant(s)

TERASHITA, TAKAAKI

Examiner

Dorothy Wu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

✓ 1. The listing of references in the specification is not a proper information disclosure statement. The citations occur on page 2, lines 3, 8, 15, and 23; page 3, line 2; page 4, line 7; page 5, lines 2 and 9; page 23, lines 5, 7, and 9; 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

✓ 2. The abstract of the disclosure is objected to because it exceeds the maximum allowed length for an abstract. Correction is required. See MPEP § 608.01(b).

✓ 3. The disclosure is objected to because of the following informalities: on page 11, lines 11-12, 15-19, a number of phrases occur with quotation marks surrounding them. They do not quote from any reference, and are not necessary. On page 11, lines 15-19, the sentence is incoherent. On page 14, lines 15-16, another phrase appears in quotation marks.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6, 7, 15, and 16 are rejected under 35 USC 112, second paragraph.

✓ Claim 6 recites the limitation "predetermined value" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

✓ Claim 7 recites the limitation "display means" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

✓ Claim 15 recites the limitation "predetermined value" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

✓ Claim 16 recites the limitation "display means" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 6-13, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata et al, U.S. Patent 6,373,533, in view of Kishida, U.S. Patent 5,287,418.

Regarding claim 1, Kawabata teaches an image processing method that executes image processing on digital image data (col. 1, lines 4-6). Kawabata teaches a histogram generator that

calculates the distribution of picture levels in an input video signal, a gain controller that outputs a value for correcting the histogram, and a histogram correction circuit that corrects the image histogram according to the value supplied by the gain controller (col. 3, lines 1-10). The output of the gain controller is the density conversion condition, and the corrected histogram is the gradation conversion condition determined on the basis of the density conversion condition. Kawabata further teaches a video signal correction circuit that modifies the input signals using the corrected histogram (col. 3, lines 11-13).

Kawabata does not disclose that the digital image data was obtained by a digital camera, nor does Kawabata teach a step of creating the reproduced image. Kishida does disclose that a digital camera obtains the digital image data (Fig. 1), where digital camera has been interpreted broadly to mean a device that inputs analog data, converts it to digital data, and processes the digital data. Kishida also teaches that the image is recreated and displayed (col. 4, lines 50-52, 57-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the signal processing method disclosed by Kawabata with the input and output steps disclosed by Kishida to obtain a full system that obtains digital image data, determines a density conversion condition, determines a gradation conversion condition based on the density conversion condition, processes the digital image data according to the gradation conversion condition, and outputs the recreated image. One of ordinary skill in the art would be motivated to make such a modification because the input and output means enable one to obtain an image and view it, and the image processing method allows one to improve the image quality.

Regarding claim 10, because the method of image processing with the limitations of claim 1 is taught, the apparatus associated with the method is also already taught.

Regarding claim 2, Kishida discloses a step of separating the digital image data into density component data and color component data (col. 5, lines 1-3). It is an inherent step in digital signal processing methods to separate color image data into luminance and chrominance signals to obtain a luminance signal. Kishida also discloses a color monitor for displaying the reproduced image (Fig. 6), and it is inherent that density component data needs to be synthesized with color component data for an image to be displayed on a color monitor.

Regarding claim 11, because the method of image processing with the limitations of claim 2 is taught, the apparatus associated with the method is also already taught.

Regarding claim 3, Kawabata discloses that the density conversion condition is determined based on a characteristic value of the image expressed by the digital image data (col. 4, lines 22-25).

Regarding claim 12, because the method of image processing with the limitations of claim 3 is taught, the apparatus associated with the method is also already taught.

Regarding claim 4, Kawabata discloses that the characteristic value of the image is a mean value of densities of the digital image data (col. 4, lines 22-25).

Regarding claim 13, because the method of image processing with the limitations of claim 4 is taught, the apparatus associated with the method is also already taught.

Regarding claim 6, Kawabata discloses that a certain value is added to the frequency of one interval and subtracted from the frequency of others (col. 3, lines 33-37). Kawabata also discloses that the frequency of the former interval is intensified to improve the contrast of this

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portion (col. 3, lines 38-40). Accordingly, the frequency of the intervals whose values have decreased will decrease in intensity. Therefore, based on a predetermined certain value, the gradation conversion condition hardens and softens tones in the image.

Regarding claim 15, because the method of image processing with the limitations of claim 6 is taught, the apparatus associated with the method is also already taught.

Regarding claim 7, Kishida discloses that an operator views the image expressed by the digital image data, thus indicating that the data is displayed on display means (col. 3, lines 37). The operator may use a keyboard to select density conversion conditions that determine the gradation conversion condition (col. 3, lines 48-54).

Regarding claim 16, because the method of image processing with the limitations of claim 7 is taught, the apparatus associated with the method is also already taught.

Regarding claim 8, Kawabata discloses that the brightest input signals map to white or approximately white regions for the output (Figs. 3, 4, and 7).

Regarding claim 17, because the method of image processing with the limitations of claim 8 is taught, the apparatus associated with the method is also already taught.

Regarding claim 9, Kawabata discloses that the gradation conversion condition has a boundary condition to prevent excessive correction (col. 4, lines 50-53). The condition ensures that as the average picture level f decreases, the adjustment value c cannot be so high as to render an interval of frequencies zero or below zero.

Regarding claim 18, because the method of image processing with the limitations of claim 9 is taught, the apparatus associated with the method is also already taught.

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6. Claims 5 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata et al, U.S. Patent 6,373,533, in view of Kishida, U.S. Patent 5,287,418, and further in view of Asada, U.S. Patent 5,875,262.

Regarding claim 5, Kawabata in view of Kishida discloses an image processing method according to claim 3. See above. Kawabata in view of Kishida does not disclose that the characteristic value is a weighted mean value based on a weight coefficient determined by a color in each pixel of the digital image data. Asada discloses the calculation of a characteristic value of a weighted mean value based on a weight coefficient determined by a color in each pixel of the digital image data (col. 30, line 45-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the weighted mean value based on color disclosed by Asada with the image processing method disclosed by Kawabata in view of Kishida to make a tone correction method whose density conversion condition is dependent upon color information in the digital image data. One of ordinary skill would be motivated to make this modification because the tone correction method would take color information specific to the image into account when modifying the density of the image.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mann, U.S. Patent 5,828,793, discloses a method and apparatus for producing digital images by capturing images with different exposure times and combining them to produce an image that highlights and shadows the appropriate regions. See Figs. 6A and 7B.

Alkofer, U.S. Patent 4,636,845, discloses a digital image processing method to correct over- and under-exposed photographic images.

Watanabe, U.S. Patent 6,154,288, discloses an image processing method to adjust the digital image signal dynamic range to the dynamic range of the tone reproduction curves of a printing medium to compensate for high and low density images.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dorothy Wu whose telephone number is 703-305-8412. The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams, can be reached at 703-305-4863.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC 20231

Or faxed to:

703-872-9314

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is 703-306-0377.

Dorothy Liu

DW

November 25, 2002

KA Williams

Kimberly A. Williams
Primary Examiner
~~Technology Center 2700~~